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JAMES C. SIMMONS

Name

James C. Simmons

Signature

November 26, 2003

Date of signature

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:  
Heshmat et al

Serial no. 10/023,922

Filed: December 18, 2001

For: HYBRID FOIL-MAGNETIC BEARING  
WITH IMPROVED LOAD SHARING

Art Unit: 2834

Examiner: Dang D. Le

**AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Sir:

In response to the Office Action mailed June 27, 2003 (in accordance with the Petition and fee enclosed herewith, an extension of time of 2 months to respond to the Office Action is respectfully requested), please amend the above-identified application as follows:

In the Specification:

Page 1, all three full paragraphs (currently amended).

The present application is a continuation-in-part of U.S. patent application serial no. 09/153,513, filed September 15, 1998 (now U.S. patent 6,353,273), which claims priority of U.S. provisional patent application serial number 60/059,005, filed September 15, 1997, which applications are hereby incorporated herein by reference.

The present invention relates generally to bearings.

Foil bearings, such as disclosed in U.S. patent application serial numbers 08/827,203 and 08/827,202 (now U.S. patents 5,902,049 and 5,833,369 respectively), assigned to the assignee of the present invention, and U.S. patents 4,262,975; 4,277,113; 4,300,806; 4,296,976; 4,277,112; 4,277,111; 5,833,369; and 5,902,049 of Hooshang Heshmat (either as sole or as joint inventor), an inventor of the present invention, which applications and patents are incorporated herein by reference, include a sheet positioned to face a shaft portion for relative movement there between and means in the form of a corrugated shape having a plurality of ridges or other suitable form for resiliently supporting the sheet thereby defining a compliant hydrodynamic fluid film bearing. The bearing may be a journal bearing in which case the sheet is in surrounding relation to a shaft for relative rotational movement there between or a thrust bearing in which case the sheet bears a rotating shaft runner. The bearing axis may alternatively be slanted to the radial and axial directions and therefore have the attributes of both a journal and thrust bearing. Stiffness and damping are provided in a foil bearing by the smooth top foil or sheet and structural support elements which are suitably designed to provide a compliant spring support of the desired stiffness (or stiffness which is variable with load) and damping and by the hydrodynamic

effects of a gas film between the shaft and the smooth top foil.